

## **REMARKS**

Claims 1-5, 21-42 and 49-50 are pending, and claims 6-20 and 43-48 have been withdrawn with traverse under a restriction requirement. Claims 27, 33, 37-38 and 49-50 have been amended. In light of the following, all of the pending claims are now in condition for allowance. If, after considering this response, the Examiner does not agree that all of the claims are allowable, then she is requested to schedule a teleconference with the Applicant's attorney to further prosecution of the application.

### **Rejection of claim 36 under 35 U.S.C. § 112, first paragraph**

The Applicant's attorney disagrees with this rejection because the disclosure enables a servo circuit that includes first and second Viterbi detectors. For example, FIGS. 5-6 of the present application disclose that in one embodiment of the invention, the synchronous servo circuit 60 includes a first Viterbi detector 78 and a second Viterbi detector 100 inside of the sync-mark-and-polarity detector 62. As described in paragraph [30] of the present application, when the first Viterbi detector 78 is *not* omitted, the second Viterbi detector 100 recovers the sync mark and the first Viterbi detector 78 recovers the remainder of the servo data. However, when the first Viterbi detector 78 is omitted, then the second Viterbi detector 100 recovers all of the servo data. Similarly, as described in paragraph [48] of the present application, both the first Viterbi detector 78 and the second Viterbi detector 100 may process two samples of the servo signal at a time. Therefore, the disclosure clearly enables first and second Viterbi detectors.

### **Rejection of claims 1-3 and 5 under 35 U.S.C. § 102(b) as being anticipated by Nakane et al. (US 6,091,699)**

#### **Claim 1**

Claim 1 recites a read-write head that is coupled to the circuit with a connection polarity, and a determinator operable to determine the connection polarity from the recovered servo data.

For example, referring, e.g., to FIGS. 1 and 5-6 of the present application, a read-write head 14 reads servo data from a magnetic data-storage disk 12. The read-write head 14 is coupled to a servo circuit 60 with a connection polarity (head connection reversed or not reversed), and a Viterbi detector 100 recovers a sync mark from the servo signal. A comparator 104 determines the connection polarity of the read-write head 14 from the recovered sync mark. More specifically, by comparing the recovered sync mark to a stored (in register 106) noninverted copy of the sync mark, the comparator 104 can determine the connection polarity of the read-write head 14. If the comparator 104 determines that the head connection is reversed, then the comparator can generate a signal that causes a phase-compensation circuit 64 to compensate for this reversed connection. If the comparator 104 determines that the head connection is not reversed, then no compensation is needed.

Nakane, on the other hand, does not disclose a read-write head that is coupled to the circuit with a connection polarity, and a determinator operable to determine the connection polarity from the recovered servo data. In fact, Nakane does not even disclose any kind of magnetic data-storage disk whatsoever, let alone an electromagnetic read-write head. Instead, Nakane discloses an optical disk 100 having a single spiral land/groove (SS-L/G) format, and an optical head 107 that does not have a connection polarity (FIGS. 4 and 14). The only mention of polarity in Nakane is in reference to a tracking servo polarity switching point on the optical disk 100 signalling a switch between a groove track G, 94 and a land track L, 95 (FIGS. 1 and 14). Because data is recorded in both groove and land tracks on the disk, it is necessary to switch a tracking servo polarity to be set for tracking a groove track or a land track (col. 2, lines 10-30). However, this has nothing to do with the connection polarity of the read-write head itself. After reviewing Nakane in its entirety, the Applicant's attorney is unable to find any mention of a read-write head having a connection polarity, or determining the connection polarity of the read-write head itself from the recovered servo data. Therefore, Nakane does not satisfy the limitations of claim 1.

### **Claims 2-3 and 5**

Claims 2-3 and 5 are patentable by virtue of their dependencies from independent claim 1.

### **Rejection of claims 4, 21-23, 27, 30, 32-33, 37-38 and 49-50 under 35 U.S.C. § 103(a) as being unpatentable over Nakane in view of Hayami (US 6,477,125)**

#### **Claim 21**

Claim 21 recites a read head that is coupled to the Viterbi detector with a connection polarity, and a comparator operable to determine the connection polarity from the recovered synchronization mark.

Claim 21 is patentable for reasons similar to those recited above in support of the patentability of claim 1.

#### **Claim 27**

Claim 27, as amended, recites a servo signal having a phase that represents a connection polarity of a read head, and determining the phase of the servo signal from the recovered synchronization mark.

Claim 27 is patentable for reasons similar to those recited above in support of the patentability of claim 21.

#### **Claim 33**

Claim 33, as amended, recites a servo signal having a phase that represents a connection polarity of a read head, and determining the phase of the servo signal from the recovered synchronization mark.

Claim 33 is patentable for reasons similar to those recited above in support of the patentability of claim 27.

#### **Claim 37**

Claim 37, as amended, recites a read head having a connection polarity, and a Viterbi detector operable to recover the synchronization mark and other servo data regardless of the connection polarity of the read head.

Claim 37 is patentable for reasons similar to those recited above in support of the patentability of claim 1.

**Claim 38**

Claim 38 recites a servo signal having a phase that represents a connection polarity of the read head, and determining the phase from the recovered servo data.

Claim 38 is patentable for reasons similar to those recited above in support of the patentability of claim 27.

**Claim 49**

Claim 49, as amended, recites a servo signal having a polarity that represents a connection polarity of the read head, and recovering servo data regardless of the polarity of the servo signal.

Claim 49 is patentable for reasons similar to those recited above in support of the patentability of claim 37.

**Claim 50**

Claim 50, as amended, recites a servo signal having a polarity that represents a connection polarity of the read head.

Claim 50 is patentable for reasons similar to those recited above in support of the patentability of claim 49.

**Rejection of claims 24, 28, 35 and 39-41 under 35 U.S.C. § 103(a) as being unpatentable over Nakane and Hayami in view of Tuttle et al (US 6,108,151)**

Claims 24, 28, 35 and 39-41 are patentable by virtue of their respective dependencies from independent claims 21, 27, 33 and 38.

**Rejection of claims 29, 31 and 34 under 35 U.S.C. § 103(a) as being unpatentable over Nakane and Hayami in view of Osada (US 5,291,464)**

Claims 29, 31 and 34 are patentable by virtue of their respective dependencies from independent claims 27 and 33.

**Rejection of claim 25-26 and 42 under 35 U.S.C. § 103(a) as being unpatentable  
over Nakane and Hayami in view of Cloke (US 5,822,143)**

Claims 25-26 and 42 are patentable by virtue of their respective dependencies from independent claims 21 and 38.

## CONCLUSION

In light of the foregoing, claims 1-5, 21-42 and 49-50 are in condition for allowance, which is respectfully requested.

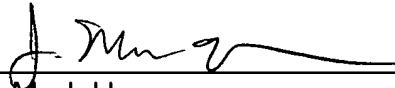
In the event any fees are due as a result of this Amendment, you are hereby authorized to charge such payment to Deposit Account No. 07-1897.

If, after considering this response, the Examiner does not agree that all of the claims are allowable, then she is requested to schedule a phone interview with the Applicant's attorney at (425)-455-5575.

DATED this 10<sup>th</sup> day of October, 2006.

Respectfully submitted,

GRAYBEAL JACKSON HALEY LLP



J. Mark Han  
Registration No. 57,898  
Graybeal Jackson Haley LLP  
155 - 108th Avenue N.E., Suite 350  
Bellevue, WA 98004-5973  
Phone: (425) 455-5575  
Fax: (425) 455-1046  
E-mail: [mhan@graybeal.com](mailto:mhan@graybeal.com)